

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-8. (Cancelled)

9. (New) An optical pickup device configured to any one of read data from and write data on an optical recording medium by using an objective lens, the optical pickup device comprising:

a shape-information obtaining unit that obtains shape information indicative of shape of the optical recording medium in a direction perpendicular to a plane of the optical recording medium, wherein the shape-information obtaining unit obtains the shape information before data is read from or written on the optical recording medium;

a limit setting unit that sets a plurality of distance limits corresponding to each of a plurality of positions on the optical recording medium based on the shape information obtained by the shape-information obtaining unit; and

a controlling unit that provides a control so that a relative distance between the objective lens and the optical recording medium is not less than a distance limit corresponding to a current position of the objective lens on the optical recording medium.

10. (New) The optical pickup device according to claim 9, further comprising an actuator that holds the objective lens and moves the objective lens on the optical recording medium, wherein

the controlling unit varies a drive current applied to the actuator to provide the control.

11. (New) The optical pickup device according to claim 9, further comprising a stopper member capable of moving in the direction perpendicular to the plane of the optical recording medium, and abutting the objective lens, wherein

the controlling unit controls the position of the stopper member to provide the control.

12. (New) The optical pickup device according to claim 9, further comprising:

an actuator that holds the objective lens and moves the objective lens on the optical recording medium;

a signal detecting unit that detects a focus error signal produced when the objective lens is moved in the direction perpendicular to the plane of the optical recording medium; and

a drive-current detecting unit that detects a drive current currently applied to the actuator, wherein

the shape-information obtaining unit obtains the shape information based on the focus error signal detected by the signal detecting unit and the drive current detected by the drive-current detecting unit.

13. (New) The optical pickup device according to claim 12, wherein the limit setting unit sets a distance limit corresponding to a first position based on a first drive current necessary to move the objective lens from a current position of the objective lens to a second position at which the focus error signal is equal to zero, and on a second drive current necessary to move the objective lens from the second position to the first position.

14. (New) The optical pickup device according to claim 9, further comprising:

an actuator that holds the objective lens and moves the objective lens on the optical recording medium;

a signal detecting unit that detects a focus error signal produced when the objective lens is moved in the direction perpendicular to the plane of the optical recording medium; and

a distance measuring unit that measures a focus distance indicative of a relative distance of the objective lens with respect to the actuator, wherein

the shape-information obtaining unit obtains the shape information based on the focus error signal detected by the signal detecting unit and the focus distance measured by the distance measuring unit.

15. (New) The optical pickup device according to claim 14, wherein the limit setting unit sets a distance limit based on a focus distance at a first position where the focus error signal is equal to zero and an object distance at the first position, wherein the object distance is a distance between the objective lens and a surface of the optical recording medium.

16. (New) A method of preventing collision between an objective lens and an optical recording medium, the objective lens being moved over the optical recording medium to any one of read data from and write data on the optical recording medium, the method comprising:

obtaining shape information indicative of shape of the optical recording medium in a direction perpendicular to a plane of the optical recording medium, wherein the obtaining is performed reading data from or writing data on the optical recording medium;

setting a plurality of distance limits corresponding to each of a plurality of positions on the optical recording medium based on the shape information obtained at the obtaining; and

providing a control so that a relative distance between the objective lens and the optical recording medium is not less than a distance limit corresponding to a current position of the objective lens on the optical recording medium.